ANTI BALLISTIC MISSILE

Nike X Workable, But Imperfect

By ALBERT SEHLSTEDT, JR.
(Washington Bureau of The Sun)

Washington, Jan. 13—The United States has spent $2,400,000,000 to develop a system of radars, computers and rockets to defend itself against a missile attack.

The development of such a system, after ten years of effort, is now at a stage where it works.

These are two facts in a complex area of national discussion about whether the United States should deploy a defensive system against a potential enemy's intercontinental ballistic missile.

But those two facts cannot stand alone.

It is true that this country could place many anti-missile missiles around its cities and destroy many intercontinental ballistic missiles launched by another country.

But not all would be destroyed. No one has yet devised the perfect anti-missile system, nor does that prospect seem likely.

Unfortunately, anything less than perfection in the technology of nuclear missile defense can mean an empty space where a city once stood.

So there is a big difference between a workable defensive system—one that genuinely multiplies the problems of an enemy about to launch his ICBM's, and which may therefore dissuade him altogether—and a defensive system that would make every American confident he is protected from disintegration by an impregnable shield.

The very good but imperfect United States anti-missile system is called Nike X, and it can be divided into three principal parts; the defensive rockets which would be launched against attacking ICBM's, the radar equipment that would find the incoming warheads and plot their trajectory, and the computers which would make the rapid calculations to intercept the warheads.

"Spartan And Sprint"

All three work together with the coordination of a well-drilled backfield.

The defensive rockets are two. One is called Spartan (it used to be called Zeus) and the other is Sprint.

Spartan is a long-range weapon (how long, the Defense Department will not say) which can be fired at an approaching ICBM while it is still beyond the atmosphere.

The earlier an ICBM is intercepted in its flight the better, because there is less likelihood that the incoming missile will take evasive action to confuse the defenders.

Spartan possesses the added advantage of being an area defensive weapon. That is, the weapon's range is so long that a number of spartans can be used to defend an entire region, such as the Middle Atlantic states, rather than only a city.

Extreme Speed Necessary

Sprint is a missile designed to go after the enemy warhead after it has entered the atmosphere and is in the final phase of its flight.

As that situation would suggest, the anti-missile missile must be extremely fast in getting off the ground and up to the intercept point. Sprint is fast.

Going after an ICBM on the last lap of its journey does not sound advisable, but the situation does offer some advantages. One is the fact that decoys or phony warheads are more recognizable in the atmosphere and, therefore, the real warhead is easier to identify.

ICBM technology has long since reached the stage where attempts to confuse the defender are part of the game. A single warhead, as seen on a radar screen, may suddenly multiply into a dozen targets as the incoming missile ejects decoys.

But decoys are by definition different, and the way they react during reentry into the atmosphere can be discerned by radar with the aid of the computers making speedy calculations about what is happening.

As a terminal defensive weapon, Sprint would be placed relatively close to cities. It has a shorter range than Spartan.

The two anti-missile missiles would doubtless be used to complement each other in an actual attack.

Supporting the missiles is radar, which has the task of detecting the ICBM as soon as possible, observing its trajectory (which would be a clue to its intended target) and following the course of the anti-missile missiles that go out to meet the attacker.

Until a few years ago, radar systems were mechanical to the extent that their reflecting surfaces had to be moved from one position to another in following the flight of an object like a warhead.

To "look" in many directions, the radar had to be turned in many directions.

Now Have MAR

A new kind of radar has been added to the missile defense system. It is called multi-function array radar, or MAR.

MAR is composed of many elements that can look in many directions without anything moving mechanically. It might be compared to an array of large floodlights that could be turned on and off with a flick of a switch to illuminate a wide area or parts of a wide area simultaneously.

The MAR system was designed to work so fast that it would seem to be able to look in every direction at once.

Used in conjunction with MAR are other radars including long range, very high frequency units which would operate in conjunction with the Spartan missile.

Example Supposed

A typical engagement between the attackers and defenders might go like this:

The incoming warheads would be spotted by radar. The MAR, while continuing to search for new targets, would go into a "discrimination mode" as military people describe it. That is, it would begin to sort out the real warheads from the decoys by means of certain electronic techniques.

As the warheads approached, a long-range Spartan or a group of Spartans would be launched to detonate their nuclear explosives in the midst of the attacking missiles.

Some of the ICBM's would be destroyed and the flights of others disrupted, hopefully.

Traveling at speeds of 18,000 miles an hour, other ICBM's would get by the Spartan defense and, beginning the final phase of their long arc across the earth, would enter the atmosphere.

5,000,000 Sums A Second

All the while, computers would be working at a rate of perhaps 5,000,000 additions and subtractions, or 3,000,000, multiplications and divisions, per second.

With further data about the course of the attack, the Sprint missiles would be launched for the final kill of the ICBM's that escaped the Spartans.

Since the journey of an ICBM is only about a half hour from its launching point to target, the battle would be over in a matter of minutes. Indeed, the flight time of the Sprint is measured in seconds.

When the last computer calculation was made and the final anti-missile missile launched, the outcome would rest with the perfection of the over-all system.

U.S. Believed Asking Pact On Antimissiles

By United Press International

A special message urging agreement on ways to halt further deployment of antimissile defense systems was understood to be on its way from President Johnson to Soviet leaders today.

Officials yesterday listed this as one of the principal items touched upon in a confidential communication which the new American ambassador to Russia, Llewellyn E. Thompson, is to deliver.

Thompson met with Soviet Foreign Minister Andrei A. Gromyko today to present his credentials and to arrange for a formal meeting with Soviet President Nikolai Podgorny, to whom the special message presumably is addressed.

Official sources said the basic theme of Johnson's message concerns the desire of the United States to make every effort to improve relations with the Soviet Union and to arrive at various disarmament agreements.

Johnson said in his State of the Union address Tuesday that Russia "has begun to place near Moscow a limited antimissile defense." He made it clear the United States will not start development of Nike-X antiballistic missiles until it has made an effort to persuade the Russians to abandon their plans and avoid a costly new arms spiral.

The message also is believed to urge the desirability of rapid progress on other disarmament measures—both conventional and nuclear — including an agreement to try to prevent the spread of nuclear weapons to countries which do not have them at present.

It also was believed that Johnson's communication reemphasized the desire of the United States to find some method of beginning Vietnamese peace talks.

It also said that the President cited his intention to press for Senate ratification of a consular treaty with Russia and passage of an East-West trade act as evidence of his desire to ease tension and improve relations.